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PATENT ABSTRACTS OF JAPAN

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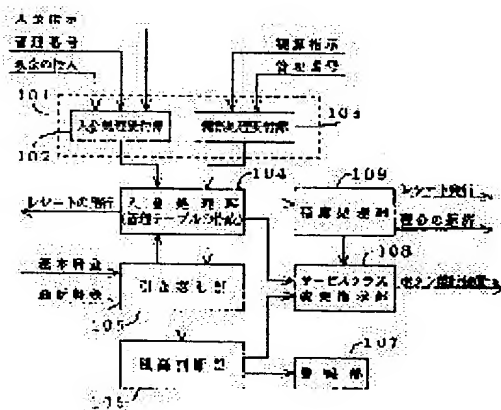
TAKAHASHI MAKOTO

(54) CALL MANAGEMENT EQUIPMENT

(57)Abstract:

PURPOSE: To realize the call management equipment in which the burden of the management of a system offer party is less and allowing a lodger in a hotel or a dormitory or the like to use a rental telephone set in its own room in almost the same sense as a telephone set owned by itself.

CONSTITUTION: When a management number is entered and a cash is deposited, a deposit processing section 104 generates a management table based on the entered data and a drawing section 105 executes drawing of a basic charge. The deposit processing section 104 issues a receipt after the basic charge is drawn. A service class revision command section 108 sends a revision command of a service class corresponding to the deposited monetary amount to a key telephone set. When a rental telephone set is in use, the drawing section 105 draws the talking charge according to a call charge data sent from the key telephone set. When the remaining amount reaches a prescribed limit or below, a residual amount discrimination section 106 starts an alarm section 107.



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CLAIMS

[Claim(s)]

[Claim 1] The payment processing section which creates the managed table corresponding to a management number, and publishes a payment receipt by payment directions, the input of a management number, and the charge of cash, The class-of-service modification directions section which performs charging minimum charge and phonecall charges directly and which lengthens and instructs modification of a class of service to be the dropping section to the telephone main unit according to the close amount of money, Call management equipment characterized by providing the balance decision section which directs an alarm when it judges whether they are said more than limit as which it lengthened and the balance after dropping was determined beforehand, or the following and becomes below.

[Claim 2] The settlement-of-accounts processing section which receives offer of data from the managed table of the payment processing section, and publishes a settlement-of-accounts receipt at least by settlement-of-accounts directions and the input of a management number Call management equipment according to claim 1 carry out having provided the class-of-service modification directions section which directs prohibition of the activity of telephone to the time of processing of settlement of accounts to the telephone main unit as the description.

[Claim 3] Call management equipment according to claim 1 with which the telephone for a loan is characterized by being a key telephone system machine or mobile radio telephone.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] Especially this invention relates to the call management equipment which enabled it to use telephone with the sensation as the telephone which he owns with the almost same visitor who stayed at the hotel etc. about call management equipment by connecting a key telephone set and a phonecall-charges cash flow-back machine.

[0002]

[Description of the Prior Art] Conventionally, the visitor and the boarder are provided with the call service using a key telephone set in the hotel, the dormitory, etc. With this call service, management of the phonecall charges of a key telephone set is important. As the approach of phonecall-charges management, the following methods were adopted conventionally.

[0003] (1) The method for which connects a phonecall-charges cash flow-back machine to a key telephone set, integrates phonecall charges for every terminal, outputs this to a printer, and a user is asked.

[0004] (2) The method using the IC card which inputs the number of availability and enabled it to use it for an IC card by the frequency by cash on delivery.

[0005] (3) The method which uses the prepaid card publishes a prepaid card according to the close amount of money with an automatic vending machine, and it enabled it to use by the frequency of the prepaid card.

[0006]

[Problem(s) to be Solved by the Invention] However, the above (1) - (3) There were the following troubles in a method.

[0007] Above (1) By the method, when it is not only large to a system provider, but the burden on the management about phonecall-charges recovery of the total of phonecall charges, the claim of each phonecall charges, recovery management of cash, etc. did not interlock recovery of these phonecall charges at the time of check-out and leaving a dormitory etc., it failed in recovery of phonecall charges and there was a problem that there was a danger of suffering unexpected damage.

[0008] Moreover, the above (2) (3) By the method, although the trouble of the method of the above (1) was cancelable, since he was the same usage as a coin box set, even if the user of telephone had to insert the card in telephone at every utilization, and he was telephoning at the ** room, he had the problem that there was sense of incongruity. Moreover, said IC card and prepaid card needed to be carried and there were a problem that a cellular phone is troublesome, and a problem that there was a danger of losing these cards.

[0009] The object of this invention removes the trouble of the above mentioned conventional method, and its burden of management by the side of a system provider is small, and is to offer the call management equipment which does not need cards, such as an IC card and a prepaid card.

[0010] Moreover, lodgers, such as a hotel and a dormitory, are the almost same sensation as the telephone which he owns at the ** room, and other objects of this invention have them in offering the call management equipment which can use telephone.

[0011]

[Means for Solving the Problem] In order to attain said object, invention according to claim 1 The payment processing section which creates the managed table corresponding to a management number, and publishes a payment receipt by payment directions, the input of a management number, and the charge of cash, The class-of-service modification directions section which performs charging minimum charge and phonecall charges directly and which lengthens and instructs modification of a class of service to be the dropping section to the telephone main unit according to the close amount of money, It judges whether they are said more than limit as which it lengthened and the balance after dropping was determined beforehand, or the following, and when it becomes below, the description is in the point of having provided the balance decision section which directs an alarm.

[0012] Moreover, the description is in invention of claim 2 to the point of having provided the settlement-of-accounts processing section which receives offer of data from the managed table creation section, and publishes a settlement-of-accounts receipt at least, and the class-of-service modification directions section which directs prohibition of the activity of telephone to the time of processing of settlement of accounts to the telephone main unit by settlement-of-accounts directions and the input of a management number.

[0013]

[Function] According to invention of said claim 1, if payment directions, the input of a management number, and the charge of cash are performed, the managed table of a telephone rate will be created. Subsequently, minimum charge is charged directly and a payment receipt is published. Then, an activity of telephone of the user of telephone charges phonecall charges directly further. This result is registered into said managed table.

[0014] Said balance decision section judges whether they are more than the limit as which it lengthened and the balance after dropping was determined beforehand, or the following, and when it becomes below, it directs an alarm. Consequently, without using a card, without being conscious of a telephone rate, the user of telephone can receive service of telephone now and can use telephone with the almost same sensation as the telephone which he owns.

[0015] Moreover, according to invention of claim 2, since said settlement-of-accounts processing section processes settlement of accounts, a system administrator's time and effort is mitigable.

[0016]

[Example] Below, with reference to a drawing, this invention is explained at a detail. Drawing 2 is the block diagram showing the configuration of one example of this invention.

[0017] For 1, as for an extension terminal (key telephone system machine) and 3, in drawing, a key telephone set and 2 are [the important section slack phonecall-charges cash flow-back machine of this invention and 4] the telephone lines.

[0018] The key telephone set 1 consists of the main wire interface unit (COTK) 10, the speech path switch unit (HWCL) 20, the central-process computer unit (CPU) 30, the accounting equipment interface unit (HCIF) 40, a subscriber control unit (PSUB) 50, a speech path signal bus 61, and a control signal bus 62 as illustrated.

[0019] Moreover, said main wire interface unit (COTK) 10 is a trunk unit of telephone-line hold, and consists of a main wire interface 11 connected to said telephone line 4, an IO control computer 12, and a PCM signal letter / decode machine 13.

[0020] Said speech path switch unit (HWCL) 20 is a control unit which performs exchange control of a speech path, and consists of an IO control computer 21, ROM23 and RAM24, and a digital speech path switch 22.

[0021] Said central-process computer unit (CPU) 30 consists of CPU31, ROM32 and RAM33, and a timer (clock) 30.

[0022] Said accounting equipment interface unit (HCIF) 40 processes control information inputs, such as circuit disconnection from the output interface and external instrument of account data, is an interface transmitted to said central-process computer unit (CPU) 30, and consists of an IC control computer 41, ROM42 and RAM43, and serial interface 44.

[0023] Furthermore, said subscriber control unit (PSUB) 50 consists of a telephone interface 51

and an IO control computer 52.

[0024] In addition, the unit of the same configuration as what the conventional key telephone set has can be used for the main wire interface unit (COTK) 10, the speech path switch unit (HWCL) 20, the above-mentioned central-process computer unit (CPU) 30, and the above-mentioned subscriber control unit (PSUB) 50, and they carry out same actuation.

[0025] That is, if actuation of main wire dispatch is made from the extension terminal 2, the control signal will be sent to the speech path switch unit (HWCL) 20 through the control signal bus 62. The speech path switch unit (HWCL) 20 controls the digital speech path switch 22 based on said control signal, and forms a speech path between the terminals 2 and main wires which carried out said main wire dispatch. On the other hand, to an extension terminal if [dispatch / from the extension terminal 2], said speech path switch unit (HWCL) 20 performs actuation linked to the specified extension terminal.

[0026] Next, the configuration of one example of the phonecall-charges cash flow-back machine 3 is explained with reference to drawing 3.

[0027] The phonecall-charges cash flow-back machine 3 has cash ON **** 72 which deposits in and withdraws cash, and the control unit 73 in which the display section, a ten key, various kinds of function keys, etc. were formed while discriminating injected cash from the recovery machine central-process section 70 which controls recovery of cash, a tariff function manager, etc., and the printer 71 which publishes receipts, such as a payment receipt and a balance audit receipt, (a bill, coin, etc.), as illustrated.

[0028] Said control unit 73 is carrying out a configuration which is being described at drawing 4 as an example, and consists of the display section, a ten key, a key release, a payment key, the reset key, an enquiry key, a confirmation key, and a cancellation key.

[0029] The recovery machine central-process section 70 of the phonecall-charges cash flow-back machine 3 consists of CPU74, the hard disk 75 which carries out record maintenance of the data, RAM76, I/O interface 77, and serial interface 78. I/O interface 77 is an interface with said printer 71, cash ON **** 72, and a control unit 73. Moreover, serial interface 78 is connected with the serial interface 44 of a key telephone set through the cable. In addition, for example, a RS232C interface can be used as serial interface 44 and 78. Next, actuation of this example is explained with reference to the flow chart of drawing 5. Drawing 5 is drawing showing the procedure of actuation of a user, and the person using a hotel, a dormitory, etc. takes the necessary procedure for stay, entrance into a room, etc. in the front first (step S1). At this time, a user receives allocation of the management number (for example, extension number) of telephone utilization (step S2). A user continues, turns ON the payment key of the phonecall-charges cash flow-back machine 3 (step S3 affirms), and operates payment processing (step S4).

[0030] On the other hand, when you check out a hotel or a dormitory is left, a reset key is turned ON (step S5 affirms), and settlement-of-accounts processing is performed (step S6). Furthermore, when a user receives enquiry of the balance etc., an enquiry key is turned ON (step S7 affirms), and inquiry processing is performed (step S8).

[0031] Next, actuation of payment processing (step S4) of said phonecall-charges cash flow-back machine 3 is explained with reference to the flow chart of drawing 6.

[0032] First, it judges whether CPU74 of the phonecall-charges cash flow-back machine 3 had the input of a management number from the control unit 73 (step S11). When there is an input, this judges that it is a right number and it judges whether it progressed to the right case at step S12, and the charge of cash was performed through cash ON **** 72. When there is the charge of cash, and it progresses to step S13, differentiation of money is performed and it is not judged as just money, blowdown processing of the money which progressed to step S14 and was invested in it is performed. On the other hand, when it is judged that it is right money, it progresses to step S15, and registration of the close amount of money matches with said management number, for example, it is carried out to the telephone rate management data set classified by management number in RAM76.

[0033] Next, CPU74 of the phonecall-charges cash flow-back machine 3 changes the class of service of the telephone corresponding to a management number, and outputs the directions of a

purport with which line wire dispatch is permitted to the central-process computer 30 of a key telephone set 1 through serial interface 78. According to these directions, this central-process computer 30 changes the class of service of the telephone corresponding to said management number, and permits line wire dispatch.

[0034] CPU74 of the phonecall-charges cash flow-back machine 3 charges a basic toll directly (step S17), and publishes a payment receipt again (step S18). A payment receipt is printed by the printer 71 and outputted.

[0035] After the aforementioned procedure is completed, a lodger or an ON dormitory person can use the key telephone system machine with which the ** room is equipped. If call origination is made from a key telephone system machine, it judges whether the call origination point suits said class of service of the central-process computer 30 of a key telephone set 1, and dispatch will be permitted when correct. If a call starts, as for the accounting equipment interface unit 40, data processing of accounting will be performed based on airraid tariff information during a call.

[0036] The result of this data processing is serially sent to CPU74 of the phonecall-charges cash flow-back machine 3 with the management number of telephone (step S19). Then, this CPU74 inspects coincidence of a management number (step S20), when in agreement, progresses to step S21 and charges phonecall charges directly to said telephone rate management data set classified by management number (step S21). It checks for the balance less than a limit after pulling down (step S22), and in [than a limit] more, it progresses to step S19 and permits continuation of a call further.

[0037] On the contrary, when the balance becomes below a limit, it progresses to step S23, and an alarm is emitted in order to report to a user that the balance became below a limit (step S23). Then, a judgment whether the call is still continued is made (step S24), and in being affirmation, as for CPU74 of the phonecall-charges cash flow-back machine 3, it directs class-of-service modification for call cutting to a key telephone set 1. Consequently, by control of the central-process computer 30 of a key telephone set 1, switching of a speech path switch unit (HWCL) is stopped, and processing which cuts a call compulsorily is performed. In addition, the activity of telephone can be continued if reentry golden processing is performed.

[0038] Moreover, data, such as data of a user's call place and utilization initiation end time, are also sent to CPU74 of the phonecall-charges cash flow-back machine 3 from a key telephone set 1, and this can be registered into said telephone rate management data set classified by management number of RAM76.

[0039] Next, actuation (step S6) of settlement-of-accounts processing is explained with reference to the flow chart of drawing 7. A user pays a telephone toll, when [at which he checks out a hotel] leaving a dormitory at the time.

[0040] First, if the input of a management number is performed by the ten key from a control unit 73 (step S31 affirms), the check of being the right will be made for this number. It progresses to step S32, and CPU74 of the phonecall-charges cash flow-back machine 3 changes the class of service of the telephone applicable to a management number into the central-process computer 30 of a key telephone set 1, and carries out the directions which forbid the activity of telephone to a right case. A speech path switch unit (HWCL) stops switching by control of said central-process computer 30.

[0041] Subsequently, CPU74 sends the data of settlement of accounts to a printer 71 and cash ON **** 72. Consequently, while a printer 71 publishes a settlement-of-accounts receipt, cash ON **** 72 returns cash (step S33). The data of a call place, utilization initiation end time, phonecall charges, etc. can be individually printed on said settlement-of-accounts receipt.

[0042] Next, actuation of inquiry processing (step S8) is explained with reference to the flow chart of drawing 8. First, if there is an input of a management number (step S41 affirms), the check of being a right number is performed, when it is a right number, it will progress to step S42, reading appearance of the data of the balance will be carried out from said telephone rate management data set classified by management number, and issuance of a receipt will be performed in the display section in a control unit 73 from a display or a printer 71.

[0043] In addition, the hysteresis of data, such as all telephone users' utilization time, payment of a telephone rate, a refund, pulling down, a call partner, and utilization initiation end time, will be

recorded on the hard disk 76 of the phonecall-charges cash flow-back machine 3. This data is saved at a fixed period and a hard disk 76, is printed by paper after that, and is eliminated from a hard disk 76.

[0044] As mentioned above, according to this example, at the time of check-in of a hotel, or an ON dormitory, if payment processing is carried out, telephone can be used, without being [the telephone set to the ** room] conscious of dropping [lengthen] a tariff. Therefore, it is effective in the ability to use telephone with the same sensation as the telephone of one's home.

[0045] Moreover, without publishing a card etc., there is inconvenient [no / of card carrying] and utilization of telephone can be aimed at to arbitration.

[0046] Next, the 2nd example of this invention is explained with reference to drawing 9. In this example, the wireless system control unit 81 is connected to the subscriber control unit 50 of a key telephone set 1, and the fixed radio stations 82, ..., 83 are connected to this wireless system control unit 81. 84 is mobile radio telephone and is made as [telephone / to a line wire or an extension / it / through a fixed radio station, the wireless system control device 81, and a key telephone set 1].

[0047] In this example, said mobile radio telephone 84 is kept in the front of a hotel or a dormitory, and it is suitable for it to make it lend out to a user at the time of check-in or an ON dormitory.

[0048] This invention is explained with reference to drawing 10. The place where drawing 10 differs from drawing 5 is the point that the actuation (step S9) which lends out a mobile radio machine entered after step S2.

[0049] According to this example, the user lent out in the mobile radio machine can use telephone not only within a ** room but within limits beforehand defined from said fixed radio stations 82 and 83.

[0050] In addition, a user will return telephone in the front at the time of settlement-of-accounts processing of step S6.

[0051] Also in the 2nd example, it is clear that the same effectiveness as the 1st example is expectable.

[0052] Drawing 1 shows the functional block diagram of the important section of this invention. In drawing, 101 is the input reception section and contains the payment processing reception section 102 and the settlement-of-accounts processing reception section 103. 104 is the payment processing section and mainly operates creation of managed tables, such as said telephone rate management data set classified by management number, and issuance of a payment receipt. 105 lengthens and, as for the balance decision section and 107, the dropping section and 106 are [the alarm section and 108] the class-of-service modification directions sections. Moreover, 109 is the settlement-of-accounts processing section.

[0053] There are directions of payment and an input of a management number from said control unit 73, and if there is the charge of cash from said cash ON **** 72, the payment processing reception section 102 will send reception beam data to the payment processing section 104. Based on the inputted data, the payment processing section 104 creates a managed table.

[0054] At this time, it lengthens and the dropping section 105 performs charging minimum charge directly. Moreover, the payment processing section 104 publishes the payment receipt after minimum charge length dropping. Furthermore, the class-of-service modification directions section 108 sends out modification directions of the class of service corresponding to the close amount of money to said key telephone set 1.

[0055] Subsequently, if telephone is used, according to said call account data to which the dropping section 105 is sent from a key telephone set 1 by lengthening, it will perform that phonecall charges drop [lengthen], and will notify to the managed table of the payment processing section 104.

[0056] On the other hand, the balance decision section 106 will start the alarm section 107, if the balance is supervising whether it became below a predetermined limit and becomes this below limit. After starting of an alarm, the class-of-service modification directions section 108 sends out modification directions of the class of service for call cutting to said key telephone

set 1, when a call is continued in addition.

[0057] Next, if there are directions of settlement of accounts and an input of a management number from said control unit 73, the settlement-of-accounts processing reception section 103 will receive these directions, and will notify to the payment processing section 104. The payment processing section 104 passes data required for settlement of accounts to the settlement-of-accounts processing section 109 from the managed table creation section. Then, the settlement-of-accounts processing section 109 notifies the purport which performs settlement-of-accounts processing to the class-of-service modification directions section 108. The class-of-service modification directions section 108 will perform the directions which forbid the activity of telephone to a key telephone set, if this advice is received.

[0058] Moreover, said settlement-of-accounts processing section 109 repays the balance while publishing a settlement-of-accounts receipt based on said data. In addition, based on this settlement-of-accounts receipt, a system provider may be made to perform the refund of the balance directly.

[0059] As mentioned above, while according to this invention only the part according to the amount of money supplied beforehand can use telephone and can mitigate a system provider's burden, the facilities of an activity of a telephone user are improvable to the maximum extent.

[0060]

[Effect of the Invention] It is not necessary to interlock the procedure for these, and recovery of these phonecall charges at the time of check-out of a hotel, and leaving a dormitory etc., and, according to this invention, is effective in a system provider's burden being light so that clearly from the above explanation.

[0061] On the other hand, from a user side, since need to purchase a card or it is not necessary to carry it and to insert a card in telephone, it is the almost same sensation as the telephone which he owns, and the effectiveness that telephone can be used can be done so.

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TECHNICAL FIELD

[Industrial Application] Especially this invention relates to the call management equipment which enabled it to use telephone with the sensation as the telephone which he owns with the almost same visitor who stayed at the hotel etc. about call management equipment by connecting a key telephone set and a phonecall-charges cash flow-back machine.

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PRIOR ART

[Description of the Prior Art] Conventionally, the visitor and the boarder are provided with the call service using a key telephone set in the hotel, the dormitory, etc. With this call service, management of the phonecall charges of a key telephone set is important. As the approach of phonecall-charges management, the following methods were adopted conventionally.

[0003] (1) The method for which connects a phonecall-charges cash flow-back machine to a key telephone set, integrates phonecall charges for every terminal, outputs this to a printer, and a user is asked.

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EFFECT OF THE INVENTION

[Effect of the Invention] It is not necessary to interlock the procedure for these, and recovery of these phonecall charges at the time of check-out of a hotel, and leaving a dormitory etc., and, according to this invention, is effective in a system provider's burden being light so that clearly from the above explanation.

[0061] On the other hand, from a user side, since need to purchase a card or it is not necessary to carry it and to insert a card in telephone, it is the almost same sensation as the telephone which he owns, and the effectiveness that telephone can be used can be done so.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, the above (1) - (3) There were the following troubles in a method.

[0007] Above (1) By the method, when it is not only large to a system provider, but the burden on the management about phonecall-charges recovery of the total of phonecall charges, the claim of each phonecall charges, recovery management of cash, etc. did not interlock recovery of these phonecall charges at the time of check-out and leaving a dormitory etc., it failed in recovery of phonecall charges and there was a problem that there was a danger of suffering unexpected damage.

[0008] Moreover, the above (2) (3) By the method, although the trouble of the method of the above (1) was cancelable, since he was the same usage as a coin box set, even if the user of telephone had to insert the card in telephone at every utilization, and he was telephoning at the ** room, he had the problem that there was sense of incongruity. Moreover, said IC card and prepaid card needed to be carried and there were a problem that a cellular phone is troublesome, and a problem that there was a danger of losing these cards.

[0009] The object of this invention removes the trouble of the above mentioned conventional method, and its burden of management by the side of a system provider is small, and is to offer the call management equipment which does not need cards, such as an IC card and a prepaid card.

[0010] Moreover, lodgers, such as a hotel and a dormitory, are the almost same sensation as the telephone which he owns at the ** room, and other objects of this invention have them in offering the call management equipment which can use telephone.

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MEANS

[Means for Solving the Problem] In order to attain said object, invention according to claim 1 The payment processing section which creates the managed table corresponding to a management number, and publishes a payment receipt by payment directions, the input of a management number, and the charge of cash, The class-of-service modification directions section which performs charging minimum charge and phonecall charges directly and which lengthens and instructs modification of a class of service to be the dropping section to the telephone main unit according to the close amount of money, It judges whether they are said more than limit as which it lengthened and the balance after dropping was determined beforehand, or the following, and when it becomes below, the description is in the point of having provided the balance decision section which directs an alarm.

[0012] Moreover, the description is in invention of claim 2 to the point of having provided the settlement-of-accounts processing section which receives offer of data from the managed table creation section, and publishes a settlement-of-accounts receipt at least, and the class-of-service modification directions section which directs prohibition of the activity of telephone to the time of processing of settlement of accounts to the telephone main unit by settlement-of-accounts directions and the input of a management number.

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OPERATION

[Function] According to invention of said claim 1, if payment directions, the input of a management number, and the charge of cash are performed, the managed table of a telephone rate will be created. Subsequently, minimum charge is charged directly and a payment receipt is published. Then, an activity of telephone of the user of telephone charges phonecall charges directly further. This result is registered into said managed table.

[0014] Said balance decision section judges whether they are more than the limit as which it lengthened and the balance after dropping was determined beforehand, or the following, and when it becomes below, it directs an alarm. Consequently, without using a card, without being conscious of a telephone rate, the user of telephone can receive service of telephone now and can use telephone with the almost same sensation as the telephone which he owns.

[0015] Moreover, according to invention of claim 2, since said settlement-of-accounts processing section processes settlement of accounts, a system administrator's time and effort is mitigable.

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3.In the drawings, any words are not translated.

EXAMPLE

[Example] Below, with reference to a drawing, this invention is explained at a detail. Drawing 2 is the block diagram showing the configuration of one example of this invention.

[0017] For 1, as for an extension terminal (key telephone system machine) and 3, in drawing, a key telephone set and 2 are [the important section slack phonecall-charges cash flow-back machine of this invention and 4] the telephone lines.

[0018] The key telephone set 1 consists of the main wire interface unit (COTK) 10, the speech path switch unit (HWCL) 20, the central-process computer unit (CPU) 30, the accounting equipment interface unit (HCIF) 40, a subscriber control unit (PSUB) 50, a speech path signal bus 61, and a control signal bus 62 as illustrated.

[0019] Moreover, said main wire interface unit (COTK) 10 is a trunk unit of telephone-line hold, and consists of a main wire interface 11 connected to said telephone line 4, an IO control computer 12, and a PCM signal letter / decode machine 13.

[0020] Said speech path switch unit (HWCL) 20 is a control unit which performs exchange control of a speech path, and consists of an IO control computer 21, ROM23 and RAM24, and a digital speech path switch 22.

[0021] Said central-process computer unit (CPU) 30 consists of CPU31, ROM32 and RAM33, and a timer (clock) 30.

[0022] Said accounting equipment interface unit (HCIF) 40 processes control information inputs, such as circuit disconnection from the output interface and external instrument of account data, is an interface transmitted to said central-process computer unit (CPU) 30, and consists of an IC control computer 41, ROM42 and RAM43, and serial interface 44.

[0023] Furthermore, said subscriber control unit (PSUB) 50 consists of a telephone interface 51 and an IO control computer 52.

[0024] In addition, the unit of the same configuration as what the conventional key telephone set has can be used for the main wire interface unit (COTK) 10, the speech path switch unit (HWCL) 20, the above-mentioned central-process computer unit (CPU) 30, and the above-mentioned subscriber control unit (PSUB) 50, and they carry out same actuation.

[0025] That is, if actuation of main wire dispatch is made from the extension terminal 2, the control signal will be sent to the speech path switch unit (HWCL) 20 through the control signal bus 62. The speech path switch unit (HWCL) 20 controls the digital speech path switch 22 based on said control signal, and forms a speech path between the terminals 2 and main wires which carried out said main wire dispatch. On the other hand, to an extension terminal if [dispatch / from the extension terminal 2], said speech path switch unit (HWCL) 20 performs actuation linked to the specified extension terminal.

[0026] Next, the configuration of one example of the phonecall-charges cash flow-back machine 3 is explained with reference to drawing 3.

[0027] The phonecall-charges cash flow-back machine 3 has cash ON **** 72 which deposits in and withdraws cash, and the control unit 73 in which the display section, a ten key, various kinds of function keys, etc. were formed while discriminating injected cash from the recovery machine central-process section 70 which controls recovery of cash, a tariff function manager, etc., and the printer 71 which publishes receipts, such as a payment receipt and a balance audit receipt,

(a bill, coin, etc.), as illustrated.

[0028] Said control unit 73 is carrying out a configuration which is being described at drawing 4 as an example, and consists of the display section, a ten key, a key release, a payment key, the reset key, an enquiry key, a confirmation key, and a cancellation key.

[0029] The recovery machine central-process section 70 of the phonecall-charges cash flow-back machine 3 consists of CPU74, the hard disk 75 which carries out record maintenance of the data, RAM76, I/O interface 77, and serial interface 78. I/O interface 77 is an interface with said printer 71, cash ON **** 72, and a control unit 73. Moreover, serial interface 78 is connected with the serial interface 44 of a key telephone set through the cable. In addition, for example, a RS232C interface can be used as serial interface 44 and 78. Next, actuation of this example is explained with reference to the flow chart of drawing 5. Drawing 5 is drawing showing the procedure of actuation of a user, and the person using a hotel, a dormitory, etc. takes the necessary procedure for stay, entrance into a room, etc. in the front first (step S1). At this time, a user receives allocation of the management number (for example, extension number) of telephone utilization (step S2). A user continues, turns ON the payment key of the phonecall-charges cash flow-back machine 3 (step S3 affirms), and operates payment processing (step S4).

[0030] On the other hand, when you check out a hotel or a dormitory is left, a reset key is turned ON (step S5 affirms), and settlement-of-accounts processing is performed (step S6). Furthermore, when a user receives enquiry of the balance etc., an enquiry key is turned ON (step S7 affirms), and inquiry processing is performed (step S8).

[0031] Next, actuation of payment processing (step S4) of said phonecall-charges cash flow-back machine 3 is explained with reference to the flow chart of drawing 6.

[0032] First, it judges whether CPU74 of the phonecall-charges cash flow-back machine 3 had the input of a management number from the control unit 73 (step S11). When there is an input, this judges that it is a right number and it judges whether it progressed to the right case at step S12, and the charge of cash was performed through cash ON **** 72. When there is the charge of cash, and it progresses to step S13, differentiation of money is performed and it is not judged as just money, blowdown processing of the money which progressed to step S14 and was invested in it is performed. On the other hand, when it is judged that it is right money, it progresses to step S15, and registration of the close amount of money matches with said management number, for example, it is carried out to the telephone rate management data set classified by management number in RAM76.

[0033] Next, CPU74 of the phonecall-charges cash flow-back machine 3 changes the class of service of the telephone corresponding to a management number, and outputs the directions of a purport with which line wire dispatch is permitted to the central-process computer 30 of a key telephone set 1 through serial interface 78. According to these directions, this central-process computer 30 changes the class of service of the telephone corresponding to said management number, and permits line wire dispatch.

[0034] CPU74 of the phonecall-charges cash flow-back machine 3 charges a basic toll directly (step S17), and publishes a payment receipt again (step S18). A payment receipt is printed by the printer 71 and outputted.

[0035] After the aforementioned procedure is completed, a lodger or an ON dormitory person can use the key telephone system machine with which the ** room is equipped. If call origination is made from a key telephone system machine, it judges whether the call origination point suits said class of service of the central-process computer 30 of a key telephone set 1, and dispatch will be permitted when correct. If a call starts, as for the accounting equipment interface unit 40, data processing of accounting will be performed based on airraid tariff information during a call.

[0036] The result of this data processing is serially sent to CPU74 of the phonecall-charges cash flow-back machine 3 with the management number of telephone (step S19). Then, this CPU74 inspects coincidence of a management number (step S20), when in agreement, progresses to step S21 and charges phonecall charges directly to said telephone rate management data set classified by management number (step S21). It checks for the balance less than a limit after pulling down (step S22), and in [than a limit] more, it progresses to step

S19 and permits continuation of a call further.

[0037] On the contrary, when the balance becomes below a limit, it progresses to step S23, and an alarm is emitted in order to report to a user that the balance became below a limit (step S23). Then, a judgment whether the call is still continued is made (step S24), and in being affirmation, as for CPU74 of the phonecall-charges cash flow-back machine 3, it directs class-of-service modification for call cutting to a key telephone set 1. Consequently, by control of the central-process computer 30 of a key telephone set 1, switching of a speech path switch unit (HWCL) is stopped, and processing which cuts a call compulsorily is performed. In addition, the activity of telephone can be continued if reentry golden processing is performed.

[0038] Moreover, data, such as data of a user's call place and utilization initiation end time, are also sent to CPU74 of the phonecall-charges cash flow-back machine 3 from a key telephone set 1, and this can be registered into said telephone rate management data set classified by management number of RAM76.

[0039] Next, actuation (step S6) of settlement-of-accounts processing is explained with reference to the flow chart of drawing 7. A user pays a telephone toll, when [at which he checks out a hotel] leaving a dormitory at the time.

[0040] First, if the input of a management number is performed by the ten key from a control unit 73 (step S31 affirms), the check of being the right will be made for this number. It progresses to step S32, and CPU74 of the phonecall-charges cash flow-back machine 3 changes the class of service of the telephone applicable to a management number into the central-process computer 30 of a key telephone set 1, and carries out the directions which forbid the activity of telephone to a right case. A speech path switch unit (HWCL) stops switching by control of said central-process computer 30.

[0041] Subsequently, CPU74 sends the data of settlement of accounts to a printer 71 and cash ON **** 72. Consequently, while a printer 71 publishes a settlement-of-accounts receipt, cash ON **** 72 returns cash (step S33). The data of a call place, utilization initiation end time, phonecall charges, etc. can be individually printed on said settlement-of-accounts receipt.

[0042] Next, actuation of inquiry processing (step S8) is explained with reference to the flow chart of drawing 8. First, if there is an input of a management number (step S41 affirms), the check of being a right number is performed, when it is a right number, it will progress to step S42, reading appearance of the data of the balance will be carried out from said telephone rate management data set classified by management number, and issuance of a receipt will be performed in the display section in a control unit 73 from a display or a printer 71.

[0043] In addition, the hysteresis of data, such as all telephone users' utilization time, payment of a telephone rate, a refund, pulling down, a call partner, and utilization initiation end time, will be recorded on the hard disk 76 of the phonecall-charges cash flow-back machine 3. This data is saved at a fixed period and a hard disk 76, is printed by paper after that, and is eliminated from a hard disk 76.

[0044] As mentioned above, according to this example, at the time of check-in of a hotel, or an ON dormitory, if payment processing is carried out, telephone can be used, without being [the telephone set to the ** room] conscious of dropping [lengthen] a tariff. Therefore, it is effective in the ability to use telephone with the same sensation as the telephone of one's home.

[0045] Moreover, without publishing a card etc., there is inconvenient [no / of card carrying] and utilization of telephone can be aimed at to arbitration.

[0046] Next, the 2nd example of this invention is explained with reference to drawing 9. In this example, the wireless system control unit 81 is connected to the subscriber control unit 50 of a key telephone set 1, and the fixed radio stations 82, ..., 83 are connected to this wireless system control unit 81. 84 is mobile radio telephone and is made as [telephone / to a line wire or an extension / it / through a fixed radio station, the wireless system control device 81, and a key telephone set 1].

[0047] In this example, said mobile radio telephone 84 is kept in the front of a hotel or a dormitory, and it is suitable for it to make it lend out to a user at the time of check-in or an ON dormitory.

[0048] This invention is explained with reference to drawing 10 . The place where drawing 10 differs from drawing 5 is the point that the actuation (step S9) which lends out a mobile radio machine entered after step S2.

[0049] According to this example, the user lent out in the mobile radio machine can use telephone not only within a ** room but within limits beforehand defined from said fixed radio stations 82 and 83.

[0050] In addition, a user will return telephone in the front at the time of settlement-of-accounts processing of step S6.

[0051] Also in the 2nd example, it is clear that the same effectiveness as the 1st example is expectable.

[0052] Drawing 1 shows the functional block diagram of the important section of this invention. In drawing, 101 is the input reception section and contains the payment processing reception section 102 and the settlement-of-accounts processing reception section 103. 104 is the payment processing section and mainly operates creation of managed tables, such as said telephone rate management data set classified by management number, and issuance of a payment receipt. 105 lengthens and, as for the balance decision section and 107, the dropping section and 106 are [the alarm section and 108] the class-of-service modification directions sections. Moreover, 109 is the settlement-of-accounts processing section.

[0053] There are directions of payment and an input of a management number from said control unit 73, and if there is the charge of cash from said cash ON **** 72, the payment processing reception section 102 will send reception beam data to the payment processing section 104. Based on the inputted data, the payment processing section 104 creates a managed table.

[0054] At this time, it lengthens and the dropping section 105 performs charging minimum charge directly. Moreover, the payment processing section 104 publishes the payment receipt after minimum charge length dropping. Furthermore, the class-of-service modification directions section 108 sends out modification directions of the class of service corresponding to the close amount of money to said key telephone set 1.

[0055] Subsequently, if telephone is used, according to said call account data to which the dropping section 105 is sent from a key telephone set 1 by lengthening, it will perform that phonecall charges drop [lengthen], and will notify to the managed table of the payment processing section 104.

[0056] On the other hand, the balance decision section 106 will start the alarm section 107, if the balance is supervising whether it became below a predetermined limit and becomes this below limit. After starting of an alarm, the class-of-service modification directions section 108 sends out modification directions of the class of service for call cutting to said key telephone set 1, when a call is continued in addition.

[0057] Next, if there are directions of settlement of accounts and an input of a management number from said control unit 73, the settlement-of-accounts processing reception section 103 will receive these directions, and will notify to the payment processing section 104. The payment processing section 104 passes data required for settlement of accounts to the settlement-of-accounts processing section 109 from the managed table creation section. Then, the settlement-of-accounts processing section 109 notifies the purport which performs settlement-of-accounts processing to the class-of-service modification directions section 108. The class-of-service modification directions section 108 will perform the directions which forbid the activity of telephone to a key telephone set, if this advice is received.

[0058] Moreover, said settlement-of-accounts processing section 109 repays the balance while publishing a settlement-of-accounts receipt based on said data. In addition, based on this settlement-of-accounts receipt, a system provider may be made to perform the refund of the balance directly.

[0059] As mentioned above, while according to this invention only the part according to the amount of money supplied beforehand can use telephone and can mitigate a system provider's burden, the facilities of an activity of a telephone user are improvable to the maximum extent.

[Translation done.]

*** NOTICES ***

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the functional block diagram of the important section of this invention.

[Drawing 2] It is the block diagram showing the hard configuration of one example of this invention.

[Drawing 3] It is the block diagram showing an example of the phonecall-charges cash flow-back machine of one example of this invention.

[Drawing 4] It is drawing showing an example of the control unit of one example of this invention.

[Drawing 5] It is the flow chart which shows the outline of actuation of this example.

[Drawing 6] It is the flow chart which shows actuation of payment processing.

[Drawing 7] It is the flow chart which shows actuation of settlement-of-accounts processing.

[Drawing 8] It is the flow chart which shows actuation of inquiry processing.

[Drawing 9] It is the block diagram showing the hard configuration of the 2nd example of this invention.

[Drawing 10] It is the flow chart which shows the outline of actuation of the 2nd example.

[Description of Notations]

101 [— The balance decision section, 108 / — The class-of-service modification directions section, 109 / — Settlement-of-accounts processing section.] — The input reception section, 104 — The payment processing section, 105 — It lengthens and is the dropping section and 106.

[Translation done.]

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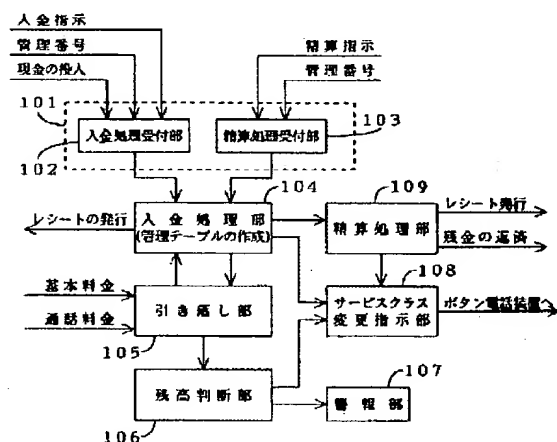
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(54) 【発明の名称】 通話管理装置

(57) 【要約】

【目的】 システム提供者側の管理の負担が小さく、かつホテルや寮等の宿泊者が、自室で自分が所有している電話機とほぼ同じ感覚で、貸与された電話機を使用できる通話管理装置を提供すること。

【構成】 管理番号の入力と、現金の投入があると、入金処理部104は入力されたデータを基に、管理テーブルを作成し、引き落とし部105は基本料金の引き落としを実行する。入金処理部104は基本料金引き落とし後の入金レシートの発行を行う。サービスクラス変更指示部108は、入金額に対応したサービスクラスの変更指示をボタン電話装置に送出する。貸与された電話機が使用されると、引き落とし部105はボタン電話装置1から送られてくる通話料金データに従って通話料金の引き落としを行う。残高が所定の限度額以下になると、残高判断部106は警報部107を起動する。



【特許請求の範囲】

【請求項1】 入金指示、管理番号の入力および現金の投入により、管理番号対応の管理テーブルを作成し、入金レシートを発行する入金処理部と、

基本料金、通話料金の引き落としを行う引き落とし部と、入金額に応じてサービスクラスの変更を電話主装置に指示するサービスクラス変更指示部と、

前記引き落とし後の残高が予め定められた限度額以上または以下かを判断し、以下になった時に警報の指示を行う残高判断部とを具備したことを特徴とする通話管理装置。

【請求項2】 精算指示、管理番号の入力により、入金処理部の管理テーブルからデータの提供を受け、少なくとも精算レシートの発行を行う精算処理部と、精算の処理時に、電話機の使用の禁止を電話主装置に指示するサービスクラス変更指示部とを具備したことを特徴とする請求項1記載の通話管理装置。

【請求項3】 貸出し対象の電話機が、ボタン電話機または移動無線電話機であることを特徴とする請求項1記載の通話管理装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は通話管理装置に関し、特に、ボタン電話装置と通話料金現金回収機とを接続することにより、例えばホテル等に宿泊した客が自分が所有している電話機とほぼ同じ感覚で電話機を使用できるようにした通話管理装置に関する。

【0002】

【従来の技術】従来、ホテル、寮等において、ボタン電話装置を用いた通話サービスが宿泊客や寮生に提供されている。この通話サービスでは、ボタン電話装置の通話料金の管理が重要である。通話料金管理の方法として、従来は次のような方式が採用されていた。

【0003】(1) ボタン電話装置に通話料金現金回収機を接続し、各端末毎に通話料金を積算し、これをプリンタに出力して利用者に請求する方式。

【0004】(2) ICカードに代金引替えて利用可能度数を入力し、その度数分だけ利用できるようにしたICカードを利用する方式。

【0005】(3) プリペイドカードを自動販売機で入金額に応じて発行し、そのプリペイドカードの度数分だけ利用できるようにしたプリペイドカードを使用する方式。

【0006】

【発明が解決しようとする課題】しかしながら、前記(1)～(3)の方式には、次のような問題点があった。

【0007】前記(1)の方式では、通話料金の集計、各通話料金の請求、現金の回収管理等の通話料金回収に関する管理上の負担が、システム提供者に大きいばかりでなく、チェックアウト、退寮時等に該通話料金の回収を

連動させないと、通話料金の回収をしそこない、不測の損害をこうむる危険性があるという問題があった。

【0008】また、前記(2)、(3)の方式では、前記(1)の方式の問題点を解消することができるが、電話機の利用者は利用の都度電話機にカードを挿入しなければならず、公衆電話機と同様の利用方法であるので、自室で電話をしていても違和感があるという問題があった。また、前記ICカードやプリペイドカードを携帯する必要がある、携帯が煩わしいという問題、これらのカードを紛失する危険性があるといった問題があった。

【0009】本発明の目的は、前記した従来方式の問題点を除去し、システム提供者側の管理の負担が小さく、ICカードやプリペイドカード等のカードを必要としない通話管理装置を提供することにある。

【0010】また、本発明の他の目的は、ホテルや寮等の宿泊者が、自室で自分が所有している電話機とほぼ同じ感覚で、電話機を使用できる通話管理装置を提供することにある。

【0011】

【課題を解決するための手段】前記目的を達成するために、請求項1記載の発明は、入金指示、管理番号の入力および現金の投入により、管理番号対応の管理テーブルを作成し、入金レシートを発行する入金処理部と、基本料金、通話料金の引き落としを行う引き落とし部と、入金額に応じてサービスクラスの変更を電話主装置に指示するサービスクラス変更指示部と、前記引き落とし後の残高が予め定められた限度額以上または以下かを判断し、以下になった時に警報の指示を行う残高判断部とを具備した点に特徴がある。

【0012】また、請求項2の発明は、精算指示、管理番号の入力により、管理テーブル作成部からデータの提供を受け、少なくとも精算レシートの発行を行う精算処理部と、精算の処理時に、電話機の使用の禁止を電話主装置に指示するサービスクラス変更指示部とを具備した点に特徴がある。

【0013】

【作用】前記請求項1の発明によれば、入金指示、管理番号の入力および現金の投入が行われると、通話料金の管理テーブルが作成される。次いで、基本料金が引き落とされ、入金レシートが発行される。その後、電話機の利用者が電話機を使用すると、通話料金がさらに引き落とされる。この結果は、前記管理テーブルに登録される。

【0014】前記残高判断部は、引き落とし後の残高が予め定められた限度額以上または以下かを判断し、以下になった時に警報の指示を行う。この結果、電話機の利用者は電話料金を意識せずに、またカードを使用することなく、電話機のサービスを受けることができるようになり、自分が所有している電話機とほぼ同じ感覚で、電話機を使用できるようになる。

【0015】また、請求項2の発明によれば、精算の処理を前記精算処理部が行うので、システム管理者の手間を軽減することができる。

【0016】

【実施例】以下に、図面を参照して、本発明を詳細に説明する。図2は本発明の一実施例の構成を示すブロック図である。

【0017】図において、1はボタン電話装置、2は内線電話機端末（ボタン電話機）、3は本発明の要部たる通話料金現金回収機、4は電話回線である。

【0018】ボタン電話装置1は、図示されているように、局線インタフェースユニット（COTK）10と、通話路スイッチユニット（HWCL）20と、中央処理コンピュータユニット（CPU）30と、課金装置インタフェースユニット（HCIF）40と、加入者制御ユニット（PSUB）50と、通話路信号バス61と、制御信号バス62とから構成されている。

【0019】また、前記局線インタフェースユニット（COTK）10は電話回線収容のトランクユニットであり、前記電話回線4に接続された局線インタフェース11と、I/Oコントロールコンピュータ12と、PCM信号符号／復号機13とから構成されている。

【0020】前記通話路スイッチユニット（HWCL）20は通話路の交換制御を行う制御ユニットであり、I/Oコントロールコンピュータ21と、ROM23と、RAM24と、デジタル通話路スイッチ22とから構成されている。

【0021】前記中央処理コンピュータユニット（CPU）30は、CPU31と、ROM32と、RAM33と、タイマー（時計）30とから構成されている。

【0022】前記課金装置インタフェースユニット（HCIF）40は、課金データの出力インタフェースおよび外部機器からの回線開放などの制御情報入力を処理し、前記中央処理コンピュータユニット（CPU）30に伝送するインタフェースであり、I/Oコントロールコンピュータ41と、ROM42と、RAM43と、シリアルインタフェース44とから構成されている。

【0023】さらに、前記加入者制御ユニット（PSUB）50は、電話機インタフェース51と、I/Oコントロールコンピュータ52とから構成されている。

【0024】なお、上記の局線インタフェースユニット（COTK）10と、通話路スイッチユニット（HWCL）20と、中央処理コンピュータユニット（CPU）30と、加入者制御ユニット（PSUB）50は、従来のボタン電話装置が有するものと同様の構成のユニットを用いることができ、かつ同様の動作をするものである。

【0025】すなわち、内線電話機端末2から局線発信の操作がなされると、その制御信号が制御信号バス62を介して通話路スイッチユニット（HWCL）20に送

られる。通話路スイッチユニット（HWCL）20は、前記制御信号に基づいてデジタル通話路スイッチ22を制御し、前記局線発信をした端末2と局線との間に、通話路を形成する。一方、内線電話機端末2からの発信が内線端末に対するものであれば、前記通話路スイッチユニット（HWCL）20は指定された内線端末と接続する動作を行う。

【0026】次に、通話料金現金回収機3の一具体例の構成を、図3を参照して説明する。

10 【0027】通話料金現金回収機3は、図示されているように、現金の回収、料金管理機能等を制御する回収機中央処理部70と、入金レシート、残金清算レシート等のレシート類を発行するプリンタ71と、投入された現金（紙幣、硬貨等）の鑑別をすると共に、現金の出し入れを行う現金入出部72と、ディスプレイ部、テンキー、各種の機能キー等が設けられた操作部73を有している。

【0028】前記操作部73は、一例として、図4に記されているような構成をしており、ディスプレイ部、テンキー、訂正キー、入金キー、精算キー、照会キー、確認キー、および取消しキーから構成されている。

30 【0029】通話料金現金回収機3の回収機中央処理部70は、CPU74と、データを記録保持するハードディスク75と、RAM76と、I/Oインタフェース77と、シリアルインタフェース78とから構成されている。I/Oインタフェース77は、前記プリンタ71、現金入出部72および操作部73とのインタフェースである。また、シリアルインタフェース78はボタン電話装置のシリアルインタフェース44とケーブルを介して接続されている。なお、シリアルインタフェース44、78として、例えばRS232Cインタフェースを使用することができる。次に、本実施例の動作を、図5のフローチャートを参照して説明する。図5は利用者の操作の手順を示す図であり、ホテル、寮等を利用する者は、まずフロントで宿泊、入室等の手続きをする（ステップS1）。この時、利用者は電話機利用の管理番号（例えば、内線番号）の割当てを受ける（ステップS2）。利用者は、続いて、通話料金現金回収機3の入金キーをオンにし（ステップS3が肯定）、入金処理の動作を行う（ステップS4）。

40 【0030】一方、ホテルをチェックアウトしたり、退寮する時には、精算キーをオンにして（ステップS5が肯定）、精算処理を行う（ステップS6）。さらに、利用者が残金等の照会を受ける時には、照会キーをオンにして（ステップS7が肯定）、照会処理を行う（ステップS8）。

【0031】次に、前記通話料金現金回収機3の入金処理（ステップS4）の動作を、図6のフローチャートを参照して説明する。

50 【0032】まず、通話料金現金回収機3のCPU74

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は操作部73から管理番号の入力があつたか否かの判断をする(ステップS11)。入力があつた場合には、これが正しい番号か否かの判断をし、正しい場合にはステップS12に進んで、現金の投入が現金入出部72を介して行われたか否かの判断をする。現金の投入があつた場合には、ステップS13に進んで、金銭の鑑別が行われ、正当な金銭と判断されなかった時には、ステップS14に進んで、投入された金銭の排出処理が行われる。一方、正しい金銭であると判断された時には、ステップS15に進んで、入金額の登録が、前記管理番号と対応付けて、例えばRAM76中の管理番号別電話料金管理簿に行われる。

【0033】次に、通話料金現金回収機3のCPU74は、管理番号に対応する電話機のサービスクラスを変更し、外線発信を許可する旨の指示を、シリアルインタフェース78を介して、ボタン電話装置1の中央処理コンピュータ30に出力する。該中央処理コンピュータ30は、この指示に従って、前記管理番号に対応する電話機のサービスクラスを変更し、外線発信を許可する。

【0034】通話料金現金回収機3のCPU74は、また、基本使用料金の引き落としを行い(ステップS17)、入金レシートの発行を行う(ステップS18)。入金レシートは、プリンタ71により印刷されて出力される。

【0035】前記の手続きが終了すると、宿泊者または入寮者は、自室に備えられているボタン電話機を利用することができるようになる。ボタン電話機から発呼がなされると、ボタン電話装置1の中央処理コンピュータ30は、発呼先が前記サービスクラスに合っているか否かの判断をし、合っている場合には、発信を許可する。通話が始めると、課金装置インタフェースユニット40は、通話中、対地料金情報を基に、課金の演算処理を行う。

【0036】この演算処理の結果は電話機の管理番号と共に、逐次、通話料金現金回収機3のCPU74に送られる(ステップS19)。そこで、該CPU74は、管理番号の一致を検査し(ステップS20)、一致した場合には、ステップS21に進んで、前記管理番号別電話料金管理簿から通話料金の引き落としを行う(ステップS21)。引き落とし後、残金が限度額以内となったか否かのチェックを行い(ステップS22)、限度額より多い場合にはステップS19に進んでさらに通話の続行を許可する。

【0037】逆に、残金が限度額以下になった場合には、ステップS23に進んで、残金が限度額以下になったことを利用者に報告するために、警報が発せられる(ステップS23)。続いて、通話がまだ継続されているか否かの判断が行われ(ステップS24)、肯定の場合には、通話料金現金回収機3のCPU74は、通話切

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断のためのサービスクラス変更をボタン電話装置1に指示する。この結果、ボタン電話装置1の中央処理コンピュータ30の制御で、通話路スイッチユニット(HWCL)の交換接続が停止され、通話を強制的に切断する処理が実行される。なお、再入金処理が行われると、電話機の使用は続行することができる。

【0038】また、利用者の通話先のデータ、利用開始終了時間等のデータも、ボタン電話装置1から通話料金現金回収機3のCPU74に送るようにし、これをRAM76の前記管理番号別電話料金管理簿に登録するようにすることもできる。

【0039】次に、精算処理の動作(ステップS6)を、図7のフローチャートを参照して説明する。利用者は、ホテルをチェックアウトする時、あるいは退寮する時等に、電話機使用料金の精算を行う。

【0040】まず、管理番号の入力が操作部73からテンキーで行われると(ステップS31が肯定)、この番号が正しいか否かのチェックがなされる。正しい場合には、ステップS32に進んで、通話料金現金回収機3のCPU74は、ボタン電話装置1の中央処理コンピュータ30に、管理番号に該当する電話機のサービスクラスを変更し、電話機の使用を禁止する指示を行う。通話路スイッチユニット(HWCL)は、前記中央処理コンピュータ30の制御により、交換接続を停止する。

【0041】次いで、CPU74は精算のデータをプリンタ71と現金入出部72に送る。この結果、プリンタ71は精算レシートを発行すると共に、現金入出部72は現金の返還を行う(ステップS33)。前記精算レシートには、通話先のデータ、利用開始終了時間、通話料金等を、個別的にプリントすることができる。

【0042】次に、照会処理(ステップS8)の動作を、図8のフローチャートを参照して説明する。まず、管理番号の入力があると(ステップS41が肯定)、正しい番号か否かのチェックが行われ、正しい番号の場合には、ステップS42に進んで、前記管理番号別電話料金管理簿から残金のデータが読み出され、操作部73中のディスプレイ部に表示またはプリンタ71からレシートの発行が行われる。

【0043】なお、通話料金現金回収機3のハードディスク76には、全ての電話機利用者の利用日時、電話料金の入金、返済、引き落とし、通話相手、利用開始終了時間等のデータの履歴が記録されることになる。このデータは一定期間、ハードディスク76に保存され、その後、紙に印字され、ハードディスク76から消去される。

【0044】以上のように、本実施例によれば、ホテルのチェックイン時、あるいは入寮時に、入金処理をしておけば、自室にセットした電話機を、料金の引き落としを意識せずに電話機を使用することができる。したがって、自分の家庭の電話機と同様の感覚で電話機を使用できるという効果がある。

【0045】また、カード等の発行をすることなく、あるいはカード携帯の不便さもなく、任意に電話機の利用を図ることができる。

【0046】次に、本発明の第2実施例を、図9を参照して説明する。この実施例では、ボタン電話装置1の加入者制御ユニット50に、無線系制御装置81が接続され、該無線系制御装置81に固定無線局82、……、83が接続されている。84は移動無線電話機であり、固定無線局、無線系制御装置81およびボタン電話装置1を介して外線あるいは内線と通話できるようになされている。

【0047】本実施例では、前記移動無線電話機84はホテルや寮のフロントで保管しておき、チェックインや入寮時に、利用者に貸し出すようにするのが好適である。

【0048】図10を参照して、本発明を説明する。図10が図5と異なるところは、ステップS2の後に移動無線機を貸し出す動作(ステップS9)が入った点である。

【0049】本実施例によると、移動無線機を貸し出された利用者は、自室ばかりでなく、前記固定無線局82、83から予め定められた範囲内で電話機を利用することができる。

【0050】なお、ステップS6の精算処理の時に、使用者は電話機をフロントに返却することになる。

【0051】第2実施例においても、第1実施例と同様の効果を期待することができるのは明らかである。

【0052】図1は本発明の要部の機能ブロック図を示す。図において、101は入力受付部であり、入金処理受付部102と精算処理受付部103を含んでいる。104は入金処理部であり、主に、前記管理番号別電話料金管理簿等の管理テーブルの作成と、入金レシートの発行の動作を行う。105は引き落とし部、106は残高判断部、107は警報部、108はサービスクラス変更指示部である。また、109は精算処理部である。

【0053】前記操作部73から入金の指示と管理番号の入力があり、前記現金入出部72から現金の投入があると、入金処理受付部102は受付けたデータを入金処理部104に送る。入金処理部104は入力されたデータを基に、管理テーブルを作成する。

【0054】この時、引き落とし部105は基本料金の引き落としを実行する。また、入金処理部104は基本料金引き落とし後の入金レシートの発行を行う。さらに、サービスクラス変更指示部108は、入金額に対応したサービスクラスの変更指示を前記ボタン電話装置1に送出する。

【0055】次いで、電話機が使用されると、前記引き落とし部105はボタン電話装置1から送られてくる通話料金データに従って通話料金の引き落としを行い、入金処理部104の管理テーブルに通知する。

【0056】一方、残高判断部106は残高が所定の限度額以下になったか否かを監視しており、該限度額以下になると警報部107を起動する。サービスクラス変更指示部108は、警報の起動後、なお通話が続行された場合には、通話切断のためのサービスクラスの変更指示を前記ボタン電話装置1に送出する。

【0057】次に、前記操作部73から精算の指示と管理番号の入力があると、精算処理受付部103がこの指示を受け、入金処理部104に通知する。入金処理部104は管理テーブル作成部から精算に必要なデータを精算処理部109に渡す。そこで、精算処理部109は、精算処理を行う旨の通知をサービスクラス変更指示部108に行う。サービスクラス変更指示部108はこの通知を受けると、電話機の使用を禁止する指示をボタン電話装置1に行う。

【0058】また、前記精算処理部109は前記データに基づいて、精算レシートを発行すると共に、残金の返済を行う。なお、残金の返済は、該精算レシートに基づいてシステム提供者が直接行うようにしてもよい。

【0059】以上のように、本発明によれば、予め納入された金額に応じた分だけ、電話機の使用を行うことができ、システム提供者の負担を軽減できると共に、電話機利用者の使用の便を最大限に改善することができる。

【0060】

【発明の効果】以上の説明から明らかなように、本発明によれば、ホテルのチェックアウト、退寮時等にこれらのための手続きと該通話料金の回収を連動させる必要がなく、システム提供者の負担が軽いという効果がある。

【0061】一方、利用者側からは、カードを購入したり、携帯したりする必要がなく、また、カードを電話機に挿入する必要もないので、自分が所有している電話機とほぼ同じ感覚で、電話機を使用することができるという効果を奏することができる。

【図面の簡単な説明】

【図1】 本発明の要部の機能ブロック図である。

【図2】 本発明の一実施例のハード構成を示すブロック図である。

【図3】 本発明の一実施例の通話料金現金回収機の一例を示すブロック図である。

【図4】 本発明の一実施例の操作部の一例を示す図である。

【図5】 本実施例の動作の概要を示すフローチャートである。

【図6】 入金処理の動作を示すフローチャートである。

【図7】 精算処理の動作を示すフローチャートである。

【図8】 照会処理の動作を示すフローチャートである。

【図9】 本発明の第2実施例のハード構成を示すブ

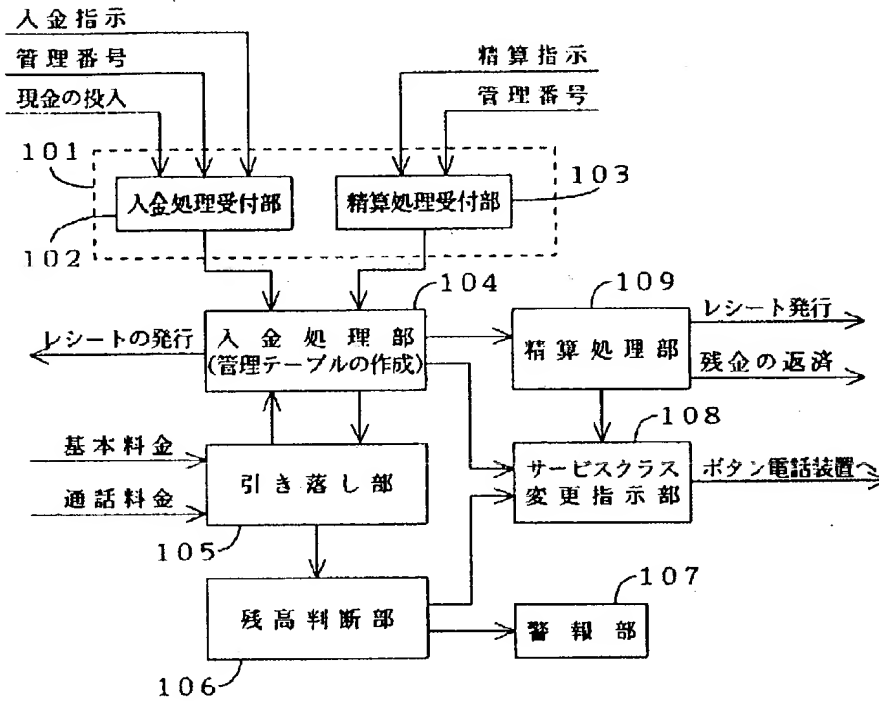
ック図である。

【図10】 第2実施例の動作の概要を示すフローチャートである。

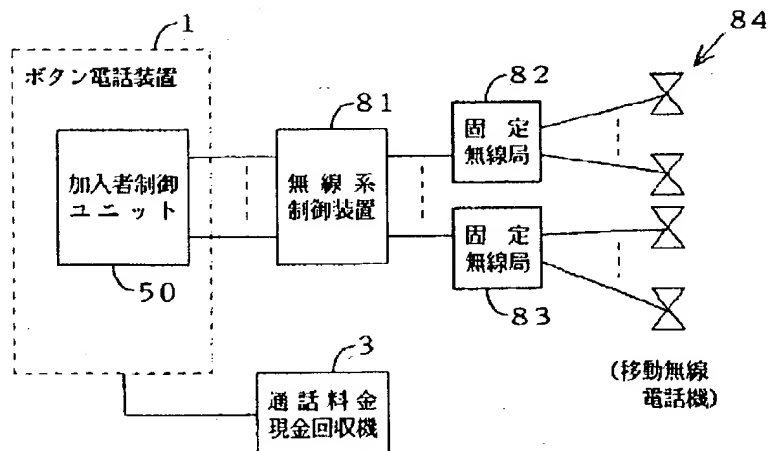
【符号の説明】

101…入力受付部、104…入金処理部、105…引き落とし部、106…残高判断部、108…サービスクラス変更指示部、109…精算処理部。

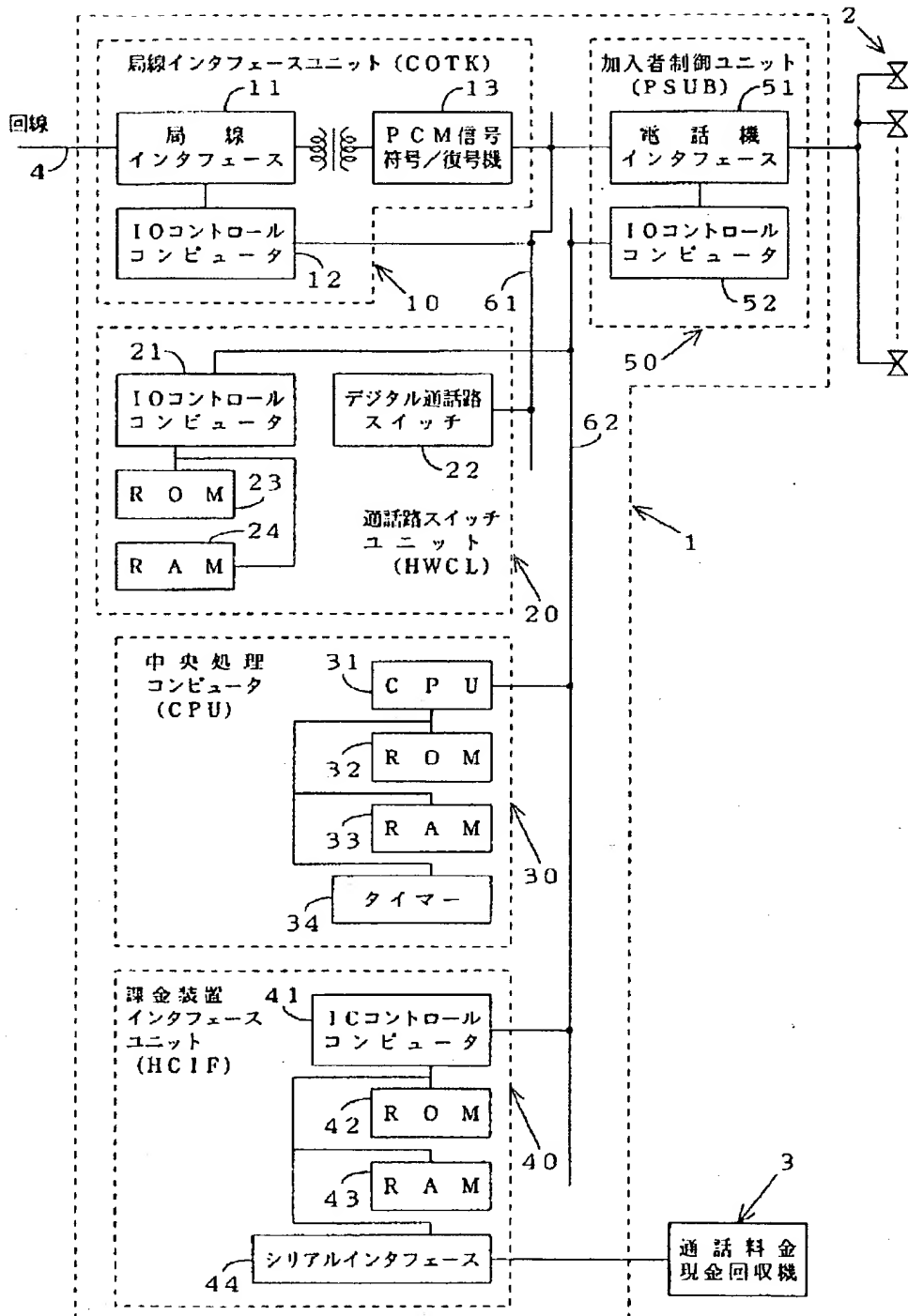
【図1】



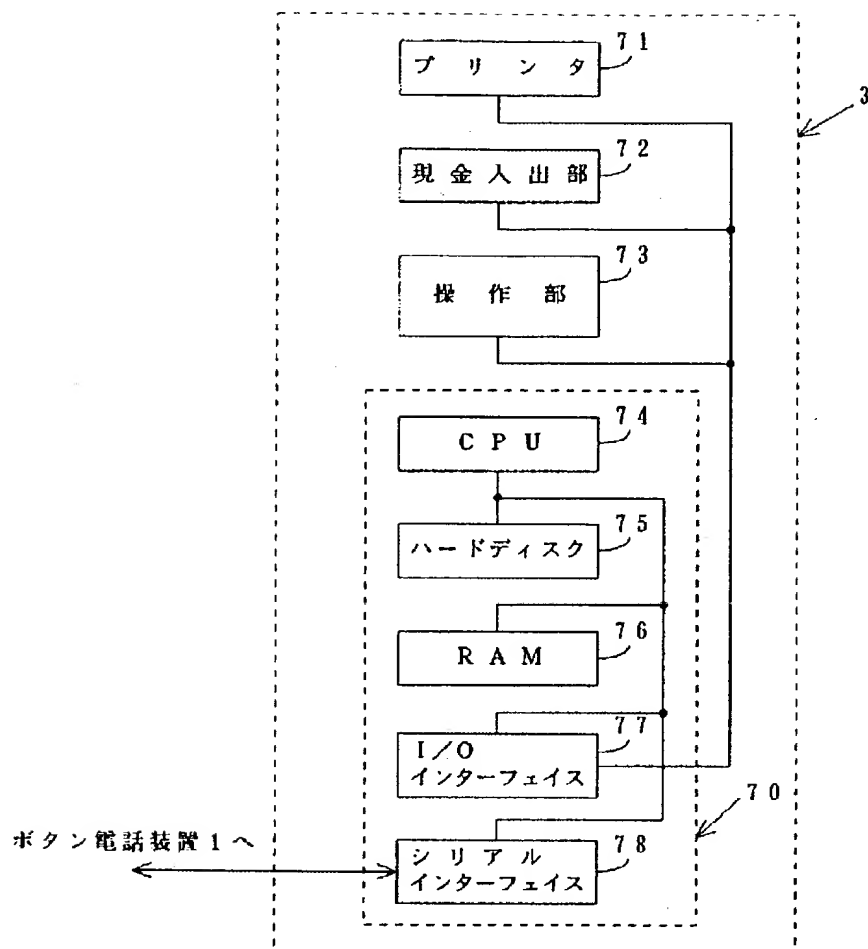
【図9】



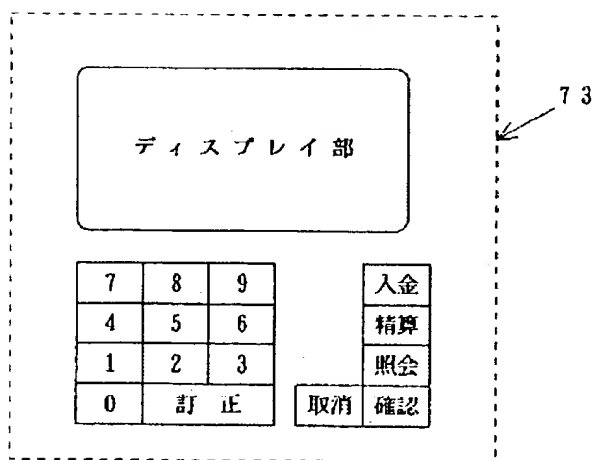
【図2】



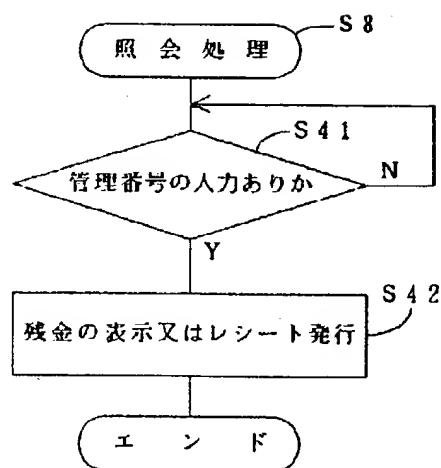
【図3】



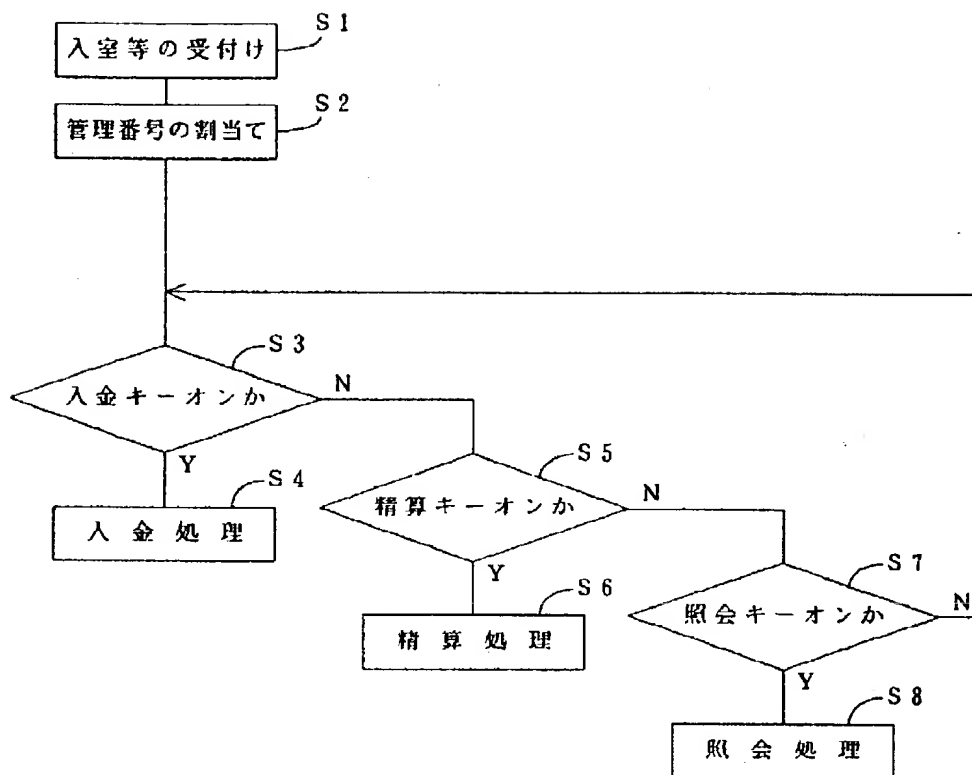
【図4】



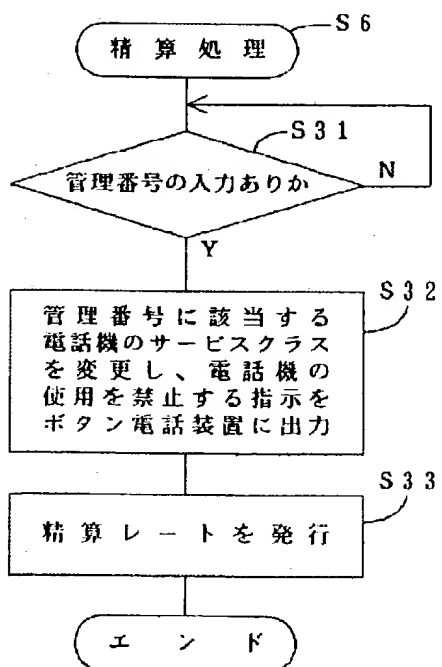
【図8】



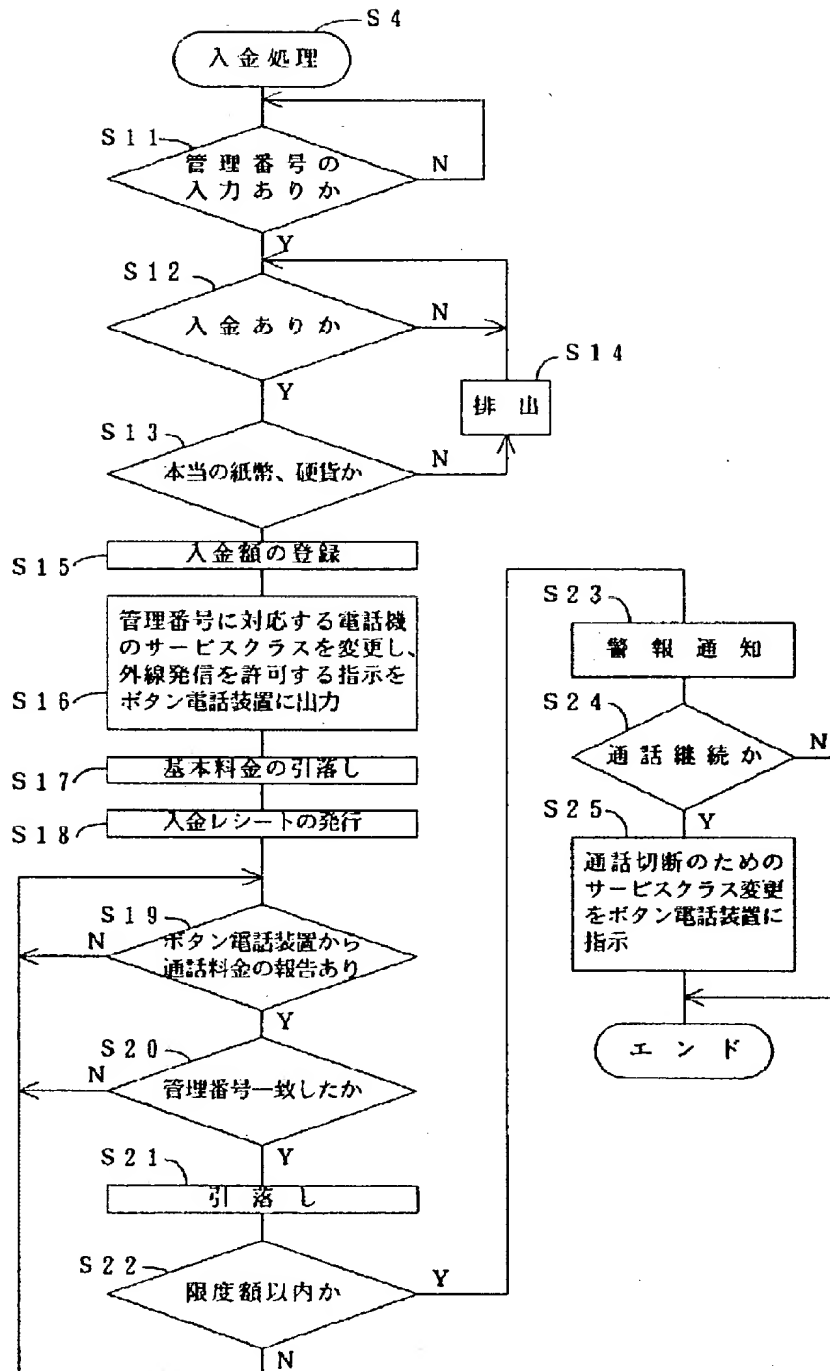
【図5】



【図7】



【図6】



【図10】

